AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A modular apparatus for detecting a target analyte, the apparatus comprising:

a reservoir module comprising:

a fluid manifold base; and

a plurality of reservoirs coupled to the fluid manifold base;

a microfluidic chip comprising:

a plurality of inlets; and

a separation channel in fluid communication with at least one of said inlets;

a sample introduction port in fluid communication with said reservoir module and at least one of the plurality of inlets;

a seal positioned between the fluid manifold base and the microfluidic chip, the seal defining at least one area of fluidic communication between one of said reservoirs and one of said inlets;

a detection module positioned to interrogate at least a portion of the separation channel; and

an output interface in communication with said detection module to indicate detection of the target analyte; and

a power module for providing controlled current or voltage.

2. (Original) A modular apparatus according to claim 1, wherein the reservoirs are each coupled to the fluid manifold base with a fitting.

3. (Original) A modular apparatus according to claim 1, wherein at least one reservoir further comprises a reservoir seal, said fluid manifold base further comprising at least one needle penetrating said reservoir seal.

4. (Original) A modular apparatus according to claim 1, wherein the needle is in fluidic communication with at least one inlet.

5 – 6. (Cancelled)

7. (Currently Amended) An apparatus according to claim 1[[5]], wherein at least one of said plurality of reservoirs comprise at least two chambers, wherein one of the at least two chambers is in fluidic communication with at least one of said plurality of inlets, and ~~a~~ the second of said ~~plurality of~~ at least two chambers is in electrical communication with the~~a~~ power module.

8. (Cancelled)

9. (Currently Amended) An apparatus according to claim 1, wherein each of said plurality of reservoirs further comprsises an electrode[[;]], ~~the apparatus further comprising:~~

and wherein a the power module is in communication with each of said electrodes.

10. (Original) An apparatus according to claim 9, wherein said power module is further in communication with said detection module.

11. (Currently Amended) An apparatus according to claim 1 wherein said separation channel comprises a low-dispersion ~~curve~~ channel.

12. (Original) An apparatus according to claim 1, wherein said microfluidic chip comprises a plurality of separation channels.

13. (Original) An apparatus according to claim 1, wherein said modular apparatus is portable.

14. (Original) An apparatus according to claim 1, wherein said modular apparatus is hand-held.

15. (Original) An apparatus according to claim 1, wherein the microfluidic chip, the reservoir module, the fluid manifold base, and the detection module are contained in a single housing.

16. (Currently Amended) An apparatus according to claim 1, wherein the detection module comprises a light source~~laser~~.

17. (Currently Amended) An apparatus according to claim 16[[~~11~~]], wherein the ~~laser comprises~~ light source is a ~~violet~~ laser diode ~~or a red laser diode~~.

18. (Original) An apparatus according to claim 1, further comprising a plurality of microfluidic chips.

19. (Original) An apparatus according to claim 18, further comprising a plurality of fluid manifold bases.

20. (Original) An apparatus according to claim 18, wherein each of said microfluidic chips are configured to perform a different microfluidic separation.

21. (Original) An apparatus according to claim 18, further comprising a plurality of detection modules.

22. (Currently Amended) A method for resetting a reservoir in a portable device for target analyte detection, the method comprising:

placing a first reservoir in fluid communication with an inlet of a microfluidic chip;

removing said first reservoir from fluid communication with the microfluidic chip; and

placing a second reservoir in fluid communication with the inlet of the microfluidic chip, wherein the act of removing said first reservoir and placing said second reservoir maintains a contiguous fluid stream between an inlet of the microfluidic chip and a separation channel within the microfluidic chip.

23. (Original) A method according to claim 22, wherein the act of removing said first reservoir and placing said second reservoir prevents gas incursion into the microflduic chip.

24. (Original) A method according to claim 22 wherein the act of removing said first reservoir and placing said second reservoir does not generate a bubble within said microfluidic chip.

25. (Currently Amended) A method according to claim 22, wherein said ~~first and~~ second reservoir[[s]] ~~each~~ comprise a seal, ~~the act of placing said first reservoir~~ and wherein the act of placing said second reservoir further comprise~~sing~~ penetrating said seal.

26. (Currently Amended) A method for determining the presence of a target analyte in a sample using a portable device comprising a sample introduction port and an output interface, said method comprising;

coupling a plurality of reservoirs to a microfluidic chip within the portable device through a fluid manifold base;

contacting said ~~input~~ sample introduction port with a sample;

performing a microfluidic separation according to a first separation characteristic within said portable device using at least a portion of said sample;

detecting at least a first separated component of said sample, ~~based on said microfluidic separation~~;

identifying said target analyte in said sample, based on said component; and

indicating detection of said target analyte on said output interface.

27. (Original) A method according to claim 26, further comprising:

performing a plurality of microfluidic separations, each according to a different separation characteristic; and

identifying said target analyte based on said plurality of separation characteristics.

28. (Original) A method according to claim 26, wherein the target analyte is selected from a group of analytes consisting of viruses, bacteria, microorganisms, biotoxins, and chemical toxins.

29. (Original) A method according to claim 26, further comprising:

carrying said portable device to a site; and

collecting said sample.

30. (Currently Amended) A method according to claim 26, wherein the act of detecting comprises interrogating a ~~detection area within the portable device with an optical device within the portable device~~portion of the separation channel.

31. (Cancelled)

32. (Original) A method according to claim 26, wherein said first separated component comprises a non-nucleic acid component.

33. (Original) A method according to claim 26, wherein the act of performing a first microfluidic separation comprises performing a separation chosen from the group of separations consisting of: capillary zone electrophoresis, liquid chromatography, capillary gel electrophoresis, isotachophoresis, capillary electrochromatography, micellar electrokinetic chromatography, and isoelectric focusing.

34. (Currently Amended) A method according to claim 26, wherein the act of detecting a first separated component comprises detecting fluorescence, ~~and wherein said fluorescence detector is within the portable device~~.

35. (Currently Amended) A method according to claim 26, wherein the act of detecting a first separated component comprises electrochemically detecting said first separated component, ~~and wherein the electrochemical detector is within the portable device~~.

36. (Original) A method according to claim 26, wherein the act of indicating the detection of the target analyte comprises generating a visual display.

37. (Currently Amended) A method according to claim 26, wherein said portable device further includes ~~an optical detector for detecting said first separated component~~ a detection module, the method further comprising:

removing said ~~optical detector~~ detection module from the portable device;

placing a second ~~optical detector~~detection module into the portable device;

performing a second microfluidic separation; and

detecting a second separated component using said second ~~optical detector~~detection module.

38. (Currently Amended) A method according to claim 37, wherein said first ~~optical detector~~detection module comprises a first optical source and said second ~~optical detector~~detection module comprises a second optical source, said first and second optical sources emitting different wavelengths.

39. (Currently Amended) A method according to claim 26, wherein ~~said~~ the act of performing a microfluidic separation comprises applying a controlled voltage or a controlled current ~~voltage~~ across at least a portion of said sample, said portable device further comprising a power module for generating said voltage or current; the method further comprising:

removing said power module from said portable device;

placing a second power module into said portable device; and

performing a second microfluidic separation using said second power module.

40. (Currently Amended) A method according to claim 39, wherein said first and second power modules are configured to generate different voltages or currents.

41. (Currently Amended) A ~~portable~~ modular device for analyzing a liquid sample, said device, comprising:

a housing including a top plate, a bottom plate, and a back plate enclosing;

means for receiving the liquid sample,

an analysis module, wherein said analysis module

comprises, in combination,

a module for separating the sample into its components, said module in fluid communication with said receiving means, and

a module for detecting the separated components by producing and acquiring a signal;

~~means for supplying high voltage~~ a power module for supplying a controlled voltage or current to said analysis module;

means for converting the signal into an elution spectrum; ~~and~~

means for the display of the elution spectrum; and

means for identifying components of the liquid sample from the elution spectrum.

42. (Original) The device of claim 41, wherein the signal is a fluorescence signal.

43. (Original) The device of claim 41, wherein the signal is an electrochemical signal.

44. (Original) The device of claim 41, wherein said modules are separable.

45. (Original) The device of claim 41, further including a dovetail rail assembly connecting said analytical module to the bottom plate of said housing thereby vibrationally isolating said analytical module and providing for its independent removal and replacement.

46. (Original) The device of claim 41, wherein said separation module, comprises:

housing means for containing at least one fluid reservoir;

means for connecting the fluid reservoir to ~~the high voltage supply~~said power module;

a microfluidic chip; and

means for transporting fluid from the fluid reservoir to said microfluidic chip, wherein said means for transporting maintains a contiguous fluid stream between the fluid reservoir and said microfluidic chip.

47. (Original) The device of claim 46, wherein said microfluidic chip comprises:

a microchannel structure comprising at least one sample channel and at least one separation channel in fluid communication, wherein said microchannel structure is disposed on a substrate; and

spaced electrodes in fluid communication with said microchannel structure.

48. (Original) The device of claim 47, wherein the substrate is silicon, quartz, glass, or a polymer material.

49. (Original) The device of claim 47 ,wherein at least a portion of the internal surface of the separation channel is coated with a coating.

50. (Currently Amended) The device of claim 47, wherein the separation channel is configured to ~~provide multiple channel depths~~ isolate pressure driven flow and further configured to provide electroosmotic flow of said liquid sample.

51. (Original) The device of claim 41, wherein said detector module comprises:

a light source;

means for focusing the light onto said separating module and collecting the emitted light;

means for directing light from said light source to said focusing means;

means for sensing the emitted light; and

means for analyzing the emitted light.

52. (Original) The device of claim 51, wherein said light source is a light-emitting diode, a laser, a laser diode, a vertical cavity surface emitting laser, a vertical external cavity surface emitting laser, or a dipole pumped solid state laser.

53. (Original) The device of claim 51, wherein said means for focusing and collecting is a high numeric aperture, aspheric or ball-type lens.

54. (Original) The device of claim 51, wherein said means for directing is a four mirror configuration.

55. (Original) The device of claim 51, wherein said means for sensing includes photomultiplier tubes, photodiodes, avalanche photodiodes, photodiode arrays, charge-coupled devices, or photosensitive detectors.

56. (Original) The device of claim 41, wherein the liquid sample includes a gas or an aerosol, and wherein the gas or aerosol is processed to produce the liquid sample.

57. (New) The modular apparatus of claim 1, further comprising a particulate filter incorporated within said sample introduction port.

58. (New) The modular apparatus of claim 1, wherein said power module provides a source or a sink current.

59. (New) The device of claim 41, further comprising a particulate filter incorporated within said receiving means.

60. (New) The device of claim 41, wherein said power module provides a source or a sink current.